

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A cord for a rubber article characterized by having a surface coated with a layer of an A~~n~~ adhesive composition comprising a thermoplastic; and water dispersible and self-crosslinkable high molecular weight polymer (A) containing a crosslinkable functional group as a pendant group, wherein the crosslinkable functional group is self-crosslinkable, and substantially free of carbon-carbon double bonds with a hydrogen radical at its allyl position in the main chain, a water-soluble high polymer (B) and a compound (C) having a structure with methylene linked aromatics having a polar functional group.

2. (currently amended): A cord for a rubber article characterized by having a surface coated with a layer of an A~~n~~ adhesive composition comprising a thermoplastic and water dispersible high molecular weight polymer (A) containing a crosslinkable functional group as a pendant group, wherein the crosslinkable functional group is self-crosslinkable, and substantially free of carbon-carbon double bonds with a hydrogen radical at its allyl position in the main chain, a water-soluble high polymer (B) and a compound (C) having a structure with methylene linked aromatics having a polar functional group, and further containing at least one component selected from the group consisting of an aliphatic epoxide compound (D), a metal salt (E), a

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metal oxide (F), a rubber latex (G) and a benzene derivative (H) having two or more (blocked) isocyanate groups.

3. (currently amended): A cord for a rubber article characterized by having a surface coated with a layer of an A~~n~~ adhesive composition comprising a thermoplastic and water dispersible high molecular weight polymer (A) containing a crosslinkable functional group as a pendant group, wherein the crosslinkable functional group is self-crosslinkable, and substantially free of carbon-carbon double bonds with a hydrogen radical at its allyl position in the main chain and an aqueous urethane compound (I) obtained by reacting an organic polyisocyanate (α) having a structure with methylene linked aromatics, a compound (β) having plural active hydrogens, and a thermally dissociatable blocking agent (γ) for an isocyanate group.

4. (currently amended): A cord for a rubber article characterized by having a surface coated with a layer of an A~~n~~ adhesive composition comprising a thermoplastic and water dispersible high molecular weight polymer (A) containing a crosslinkable functional group as a pendant group, wherein the crosslinkable functional group is self-crosslinkable, and substantially free of carbon-carbon double bonds with a hydrogen radical at its allyl position in the main chain and an aqueous urethane compound (I) obtained by reacting an organic polyisocyanate (α) having a structure with methylene linked aromatics, a compound (β) having plural active hydrogens, and a thermally dissociatable blocking agent (γ) for an isocyanate group, and further containing at least one component selected from the group consisting of an aliphatic epoxide

compound (D), a metal salt (E), a metal oxide (F), a rubber latex (G) and a benzene derivative (H) having two or more (blocked) isocyanate groups.

5. (currently amended): A cord for a rubber article characterized by having a surface coated with a layer of an ~~An~~ adhesive composition comprising a water-soluble high polymer (B) and an aqueous urethane compound (I) obtained by reacting an organic polyisocyanate (α) having a structure with methylene linked aromatics, a compound (β) having plural active hydrogens and a thermally dissociatable blocking agent (γ) for an isocyanate group.

6. (currently amended): A cord for a rubber article characterized by having a surface coated with a layer of an ~~An~~ adhesive composition comprising a water-soluble high polymer (B) and an aqueous urethane compound (I) obtained by reacting an organic polyisocyanate (α) having a structure with methylene linked aromatics, a compound (β) having plural active hydrogens and a thermally dissociatable blocking agent (γ) for an isocyanate group and further containing at least one component selected from the group consisting of an aliphatic epoxide compound (D), a metal salt (E), a metal oxide (F), a rubber latex (G) and a benzene derivative (H) having two or more (blocked) isocyanate groups.

7. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1 to 4, wherein the thermoplastic and water dispersible high molecular weight polymer (A) is a water-dispersible polymer.

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8. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1 to 4, wherein the thermoplastic and water dispersible high molecular weight polymer (A) has a weight average molecular weight of not less than 10,000.

9. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1 to 4, wherein the crosslinkable functional group in the pendant group of the thermoplastic and water dispersible high molecular weight polymer (A) is at least one selected from the group consisting of ~~an~~ oxazoline group, ~~a~~ bismaleimide group, ~~a~~-(blocked) isocyanate group, ~~an~~-epoxy group, ~~an~~-aziridine group, ~~a~~-carbodiimide group, ~~a~~-hydrazino group and ~~an~~-epithio group.

10. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1 to 4, wherein the thermoplastic and water dispersible high molecular weight polymer (A) is an ethylenically addition polymer containing 2-oxazoline group as a pendant group.

11. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1 to 4, wherein the main chain of the thermoplastic and water dispersible high molecular weight polymer (A) comprises an ethylenically addition polymer of units derived from a monomer containing substantially one carbon-carbon double bond, and an

addition-reactive carbon-carbon double bond derived from conjugated diene monomer is not more than 10% as a composition ratio in the main chain monomer.

12. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1 to 4, wherein the thermoplastic and water dispersible high molecular weight polymer (A) is a urethane based high molecular weight polymer containing a hydrazino group ~~in its~~ as a pendant group.

13. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1, 2, 5 and 6, wherein the water-soluble high polymer (B) is a water-soluble high polymer containing a carboxyl group.

14. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1, 2, 5 and 6, wherein the water-soluble high polymer (B) contains substantially free of carbon-carbon double bond with a hydrogen radical at its allyl position and has a weight average molecular weight of not less than 3,000.

15. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1, 2, 5, and 6, wherein the water-soluble high polymer (B) is a (co)polymer containing an ethylenic unit inclusive of a monomer containing a carboxyl group.

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16. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1, 2, 5 and 6, wherein the water-soluble high polymer (B) is a copolymer containing a maleic anhydride unit and an isobutylene unit, or a derivative thereof.

17. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 1, wherein the polar functional group of the compound (C) is at least one functional group selected from the group consisting of (blocked) isocyanate group, epoxy group, hydroxyl group, amino group and carboxyl group.

18. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 17, wherein the compound (C) is a reaction product of diphenylmethane diisocyanate or polyethylene polyphenyl polyisocyanate and a thermally dissociatable blocking agent for an isocyanate group.

19. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 17, wherein the compound (C) is a condensate of phenol and formaldehyde, or a modified product thereof.

20. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 19, wherein the condensate of phenol and formaldehyde is a condensate of resorcline and

formaldehyde through novolak reaction, a condensate of chlorophenol and resorcin and formaldehyde, or an epoxy cresol novolak resin.

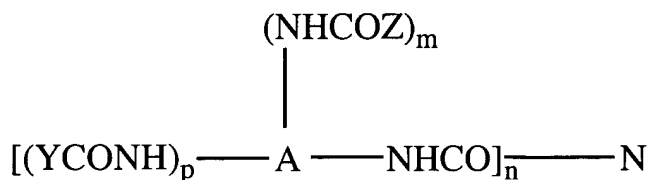
21. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 17, wherein the compound (C) is an aqueous urethane compound (I) obtained by reacting an organic polyisocyanate (α) having a structure with methylene linked aromatics, a compound (β) having plural active hydrogens and a thermally dissociatable blocking agent (γ) for an isocyanate group.

22. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 21, wherein the aqueous urethane compound (I) is an aqueous urethane compound having at least a thermally dissociatable blocked isocyanate group and a hydrophilic group, and the aqueous urethane compound is a reaction product obtained by (i) reacting an organic polyisocyanate compound (α) having a structure with methylene linked aromatics with a compound (β) having plural active hydrogens to obtain a urethane prepolymer having a free isocyanate group and (ii) treating the urethane prepolymer with a thermally dissociatable blocking agent (γ) for an isocyanate group and a compound (δ) having at least one active hydrogen and at least one hydrophilic group of anionic and/or nonionic hydrophilic groups.

23. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 22, wherein the aqueous urethane compound (I) is a reaction product comprising 40-

85% by weight of the organic polyisocyanate compound (α) having 3-5 isocyanate groups and a molecular weight of not more than 2,000, 5-35% by weight of the compound (β) having 2-4 active hydrogens and a molecular weight of not more than 5,000, 5-35% by weight of the thermally dissociatable blocking agent (γ) and 5-35% by weight of the compound (δ), and the thermally dissociatable blocked isocyanate group in the molecular weight of the reaction product is 0.5-11% by weight (converted as NCO = 42).

24. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 22, wherein the aqueous urethane compound (I) is represented by the following general formula:



[wherein A is a residue of the organic polyisocyanate compound (α), Y is a residue of the thermally dissociatable blocking agent (γ), Z is a residue of the compound (δ), X is a residue of the compound (β), n is an integer of 2-4 and p+m is an integer of 2-4 ($m \geq 0.25$)].

25. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 2~~ any one of claims 2, 4 and 6, wherein the aliphatic epoxide compound (D) is a compound having two or more epoxy groups in one molecule.

26. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 2~~ any one of claims 2, 4 and 6, wherein the aliphatic epoxide compound (D) is a reaction product of polyvalent alcohol and epichlorohydrin.

27. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 2~~ any one of claims 2, 4 and 6, wherein the metal salt (E) is a salt of polyvalent metal.

28. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 2~~ any one of claims 2, 4 and 6, wherein the metal oxide (F) is an oxide of polyvalent metal.

29. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 1, wherein the adhesive composition contains 2-75% of the thermoplastic and water dispersible high molecular weight polymer (A), 5-75% of the water soluble high polymer (B) and 15-77% of the compound (C) on dry weight.

30. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 2, wherein when the adhesive composition contains 2-75% of the thermoplastic and water dispersible high molecular weight polymer (A), 5-75% of the water soluble high polymer (B) and 15-77% of the compound (C) on dry weight, it further contains not more than 70% of the

aliphatic epoxide compound (D), not more than 50% of the metal salt (E), not more than 50% of the metal oxide (F), not more than 18% of the rubber latex (G) and not more than 50% of the benzene derivative (H).

31. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 3, wherein the adhesive composition contains 2-75% of the thermoplastic and water dispersible high molecular weight polymer (A) and 15-87% of the aqueous urethane compound (I) on dry weight.

32. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 4, wherein when the adhesive composition contains 2-75% of the thermoplastic and water dispersible high molecular weight polymer (A) and 15-87% of the aqueous urethane compound (I) on dry weight, it further contains not more than 70% of the aliphatic epoxide compound (D), not more than 50% of the metal salt (E), not more than 50% of the metal oxide (F), not more than 18% of the rubber latex (G) and not more than 50% of the benzene derivative (H).

33. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 5, wherein the adhesive composition contains 5-75% of the thermoplastic and water dispersible high molecular weight polymer (A) and 15-77% of the aqueous urethane compound (I) on dry weight.

34. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to claim 6, wherein when the adhesive composition contains 5-75% of the thermoplastic and water dispersible high molecular weight polymer (A) and 15-77% of the aqueous urethane compound (I) on dry weight, it further contains not more than 70% of the aliphatic epoxide compound (D), not more than 50% of the metal salt (E), not more than 50% of the metal oxide (F), not more than 18% of the rubber latex (G) and not more than 50% of the benzene derivative (H).

35. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1 to 6, wherein an alkali metal is not more than 2% on dry weight even when it is contained in the adhesive composition.

36. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1 to 6, wherein the adhesive composition has storage moduli G' of not more than 10^9 at 60°C and a frequency of 10 Hz and not less than 10^6 at 200°C and a frequency of 10 Hz when a dynamic viscoelasticity is measured.

37. (currently amended): A cord for a rubber article ~~An adhesive composition~~ according to ~~claim 1~~ any one of claims 1 to 6, wherein an integrated reaction calorie per 1 g on dry weight of the adhesive composition is not more than 85 J(joule) when the adhesive composition is heat-

treated at 240°C for 30 minutes, cooled to room temperature and 100 parts by dry weight of the adhesive composition is reacted with 10 parts by weight of sulfur at 160°C for 90 minutes.

38. (canceled).

39. (currently amended): A cord for a rubber article ~~A resin material~~ according to ~~claim~~
~~38~~ any one of claims 1 to 6, wherein a resin of the resin material is the cord is made of a
polyester resin, an aromatic polyamide resin or an acrylic resin, wherein the polyester resin is
polyethylene terephthalate or polyethylene naphthalate.

40. (canceled).

41. (currently amended): A cord for a rubber article ~~A resin material~~ according to ~~claim~~
~~38~~ any one of claims 1 to 6, wherein the resin material is a cord is obtained by twisting plural
filaments, and ~~the cord~~ comprises cable twist and ply twist of the synthetic fiber, in which a
twisting coefficient N1 of the ply twist is 0-0.70 and a twisting coefficient N2 of the cable twist
is 0.12-0.90 as defined by the following equations (1) and (2).

$$N1 = n1 \times (0.125 \times D1/\rho)^{1/2} \times 10^{-3} \quad (1)$$

$$N2 = n2 \times (0.125 \times D2/\rho)^{1/2} \times 10^{-3} \quad (2)$$

(wherein D1 is an indicated decitex number of the ply twist bundle, D2 is a total indicated decitex number, n1 is the number of ply twist (turns/10 cm), n2 is the number of cable twist (turns/10 cm) and ρ is a specific gravity of an organic fiber).

42. (currently amended): A cord for a rubber article ~~A resin material~~ according to ~~claim~~ 44 any one of claims 1 to 6, wherein the cord comprises cable twist and ply twist of the synthetic fiber, in which the twisting coefficient of the ply twist is 1300-2500 and the twisting coefficient of the cable twist is 900-1800.

43. (currently amended): A cord for a rubber article ~~A resin material~~ according to ~~claim~~ 44 any one of claims 1 to 6, wherein the adhesive composition coating the cord is 0.5-6.0% by weight per the cord weight on dry weight.

44. (currently amended): A rubber article characterized by reinforcing with a ~~resin material~~ cord as claimed in ~~claim 38~~ any one of claims 1 to 6.

45. (currently amended): A pneumatic tire characterized by applying a rubber article as ~~claimed in claim 44~~ characterized by reinforcing with a cord as claimed in any one of claims 1 to 6 as a rubber member.

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Claims 46-47 (canceled).